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HbA1c are likely to lead to substantial clinical and economic benefits, driven by reduced complication rates. The cost-effectiveness of interventions designed to improve glycemic control in Saudi Arabia is worthy of investigation.

PDB36

AN EVALUATION OF THE LONG-TERM COSTS AND EFFECTS OF A 1% REDUCTION IN HBA1C IN TYPE 2 DIABETES PATIENTS IN MALAYSIA

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OBJECTIVES: A1chieve is a prospective, international, observational study of basal, bolus and biphasic insulin analogues in routine clinical practice. The present analysis aimed to evaluate the economic and clinical benefits associated with a 1% reduction in HbA1c (relative to no change in HbA1c) in Malaysian A1chieve patients. **METHODS:** Life expectancy, complication rate and the cost of complications were projected over a 35-year time horizon using the published CORE Diabetes Model. At baseline, the mean (standard deviation) age of the cohort was 54 years (11 years), duration of diabetes was 12 (8) years, HbA1c was 10% (1.8%) and body mass index was 28.1 (5.1) kg/m2. HbA1c was reduced by 1%-point in the active group versus the control group. Costs were reported in 2011 Malaysian Ringgits (MYR) and converted to 2011 Euros (EUR) using the mid-market exchange rate on June 30, 2011. Future costs and clinical outcomes were discounted annually at a rate of 3.5%. **RESULTS:** A 1% reduction in HbA1c was associated with reduced costs of treating diabetes complications and an increase in life expectancy. Undiscounted life expectancy was improved by 0.36 years following HbA1c reduction (7.53 versus 7.17 years). The time alive and free of any diabetes complications increased from 0.31 years to 0.40 years in the HbA1creduction group. Over patient lifetimes, improved HbA1c was associated with cost savings of EUR 682 [MYR 3,067] (EUR 2,745 [MYR 13,607] versus EUR 3,427 [MYR 16,674]). The greatest cost savings were associated with renal complications avoided. **CONCLUSIONS:** The A1chieve study has shown that glycemic control is generally poor in routine clinical practice in Malaysia. The present analysis showed that improved glycemic control would be likely to bring substantial clinical and economic benefits to these patients, arising primarily from reduced incidence of diabetes complications.

PDB37

COST-EFFECTIVENESS OF ADDING TWICE-DAILY EXENATIDE TO BASAL INSULIN IN PATIENTS WITH TYPE 2 DIABETES IN SCOTLAND

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OBJECTIVES: To estimate the long-term cost-effectiveness of adding twice-daily exenatide (BID) to basal insulin in patients with type 2 diabetes from the perspective of NHS Scotland. Data from GWCO, a phase III, double-blind, randomized, placebo-controlled trial, comparing the efficacy of adding exenatide BID to titrated insulin glargine versus titrated insulin glargine alone, was used for the modelling analysis. After 30 weeks, exenatide BID added to glargine was associated with greater mean HbA1c reduction (-1.71% vs. -1.00%, $p<0.001$) and weight reduction (-1.78 kg vs. +0.96 kg, $p<0.001$) compared to glargine alone. **METHODS:** A previously published and validated diabetes model (IMS CORE Diabetes Model) was used to project 20-year clinical and cost outcomes based on the GWCO cohort (age 59 years, diabetes duration 12.3 years, HbA1c 8.41%) and efficacy and safety outcomes from the GWCO trial. Costs were derived from published sources and expressed in 2011 Pounds Sterling (£). An annual discount rate of 3.5% was applied to future costs and clinical benefits. **RESULTS:** In the base-case analysis exenatide BID plus glargine was projected to improve quality-adjusted life expectancy by 0.183 quality-adjusted life years (QALYs) and life expectancy by 0.147 years compared to glargine alone, at an additional cost of £1,721. The resulting cost per QALY was £9,411. Increased pharmacy costs were partially offset by reduced costs associated with diabetes complications with exenatide BID. Assuming a willingness-to-pay of £20,000 per QALY gained, exenatide BID had a 99.8% probability of being cost-effective. Sensitivity analyses showed that results were robust to variation in range of model parameters. **CONCLUSIONS:** Based on results from GWCO clinical trial, exenatide BID plus glargine is projected to be a cost-effective use of NHS Scotland resources compared to glargine alone.

PDB38

COST-EFFECTIVENESS OF INSULIN DETEMIR IN PEOPLE WITH TYPE 2 DIABETES IN ROMANIA

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OBJECTIVES: To assess cost-utility of switching type 2 diabetes patients to an insulin detemir-based regimen after failure to achieve adequate control on 1) oral antidiabetic agents (OADs) alone, or OAD in combination with 2) neutral protamine Hagedorn (NPH) insulin, or 3) insulin glargine in Romania. **METHODS:** The CORE Diabetes Model was used to model the long-term consequences. Efficacy results at the beginning and at the end of the study as well as baseline demographics of the patient cohort (subgroup analysis of the German cohort of PREDICTIVE study) were used. The perspective was the health care services payer over life time (35-years). The analysis used model default health state utility values. Cost data were derived from DRG Data from the Center for Research and Evaluation of Healthcare Services (Romania), CaNaMed National Catalogue of Medicines Prices (official tariff lists) and expert opinion. **RESULTS:** In the 1st analysis (insulin detemir ± OADs vs. OADs) QALYs increased by 0.399 years with insulin detemir. Total lifetime costs increased by EUR 4,413 resulting in an incremental cost per QALY gained of EUR 11,050. In the 2nd analysis insulin detemir increased quality-adjusted life expectancy by 0.394 QALYs and total costs by EUR 2,340, with incremental cost per QALY gained of EUR 5,943. Transferring from insulin glargine ± OADs to insulin detemir ± OADs (3rd analysis) increased QALYs by 0.319 years. Total costs increased by EUR 689 resulting in an incremental cost per QALY gained of EUR 2,160. **CONCLUSIONS:** Based on efficacy data from an observational study and a validated health economics model, insulin detemir was cost effective when compared to OAD alone, or insulin NPH ± OAD, or insulin glargine ± OAD for the treatment of type 2 diabetes in the Romanian health care setting.

PDB39

EVALUATION OF THE LONG-TERM CLINICAL AND ECONOMIC IMPACT OF A 1% HBA1C REDUCTION IN PATIENTS WITH TYPE 2 DIABETES IN INDONESIA

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OBJECTIVES: Optimal glycemic control is a key goal in patients with type 2 diabetes and is pivotal in reducing the risk of diabetes-related complications. The aim of the present study was to investigate long-term clinical and economic benefits of a 1% reduction in HbA1c versus baseline levels in patients enrolled in the A1chieve study (an international, prospective, observational study of insulin use within routine clinical practice) in the Indonesian setting. **METHODS:** The analysis was performed using the published and validated CORE Diabetes Model over a time horizon of 35 years with future costs and clinical benefits were discounted at a rate of 3% per annum. At baseline patients had a mean HbA1c of 9.8%, the analysis compared patients outcomes in which HbA1c remained at 9.8% in comparison with reducing mean HbA1c by 1%; mean HbA1c was assumed to remain unchanged throughout the simulation. Direct costs are presented in IDR (converted to EUR at a rate of 1 EUR=11,831 IDR). **RESULTS:** A 1% reduction in HbA1c from baseline led to improvements in life expectancy and quality-adjusted life expectancy. Reducing HbA1c from 9.8% to 8.8% improved life expectancy from 10.07 years to 10.69 years (difference 0.61 years) and quality-adjusted life expectancy from 6.56 quality-adjusted life years (QALYs) to 7.04 QALYs (difference 0.48 QALYs). Mean direct costs were also IDR 6,403,196 (EUR 541) lower in the reduced HbA1c group (IDR 242,721,221 [EUR 20,551] versus IDR 236,318,025 [EUR 20,026]), with the biggest driver of cost savings being the reduced incidence of renal complications in the reduced HbA1c group. **CONCLUSIONS:** Baseline glycemic control in patients with diabetes in the Indonesian setting was sub-optimal; however, a 1% reduction in HbA1c from baseline was associated with improved life expectancy and quality-adjusted life expectancy as well as being cost-saving over a 35-year time horizon.

PDB40

THE IMPORTANCE OF HBA1C EVOLUTION IN COST-EFFECTIVENESS MODELING OF TYPE 2 DIABETES MELLITUS (T2DM)

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INTRODUCTION: In T2DM, HbA1c tends to drift up over time and the extent to which anti-hyperglycemic agents can maintain initial glucose lowering effect (or durability) varies. HbA1c evolution is an important determinant of future outcomes and costs. Currently there is no consensus on how to model upward drift in HbA1c or the durability of treatments. **OBJECTIVES:** Review different approaches to modeling HbA1c evolution and assess their impact on economic evaluations of T2DM interventions. **METHODS:** We reviewed the ways in which HbA1c evolution has been modeled. Lifetime simulations were performed that compared two hypothetical treatments: 1) initial HbA1c reduction of 1.25% and annual cost of $1,000 and 2) initial HbA1c reduction of 1% and annual cost of $200, using ECHO-T2DM, a validated micro-simulation model. . Treatment was intensified in both arms when HbA1c exceeded 7.0%, first by adding basal insulin and subsequently by adding 3x daily short-acting insulin. **RESULTS:** Four different approaches were identified: (1) no HbA1c evolution; (2) constant increase in HbA1c, irrespective of treatment; (3) constant treatment-specific increase in HbA1c; and (4) non-linear increase in HbA1c, irrespective of treatment. The simulations confirmed that these assumptions are critical. While the incremental life-years (LY's) and Quality-Adjusted LYs (QALYs) were similar in the first 3 scenarios, the absolute values were highest for (1). Cost-savings and QALY gains were largest in (3), which allowed HbA1c to drift apart over time in each arm, and smallest in (2) (because treatment intensification reduced the HbA1c gap). The incremental cost-effectiveness ratio (ICER) ranged from $3,196 in (3) to $32,444 in (2). (4) could not be implemented in this version of ECHO-T2DM. **CONCLUSIONS:** Assumptions used to model HbA1c evolution have important consequences for estimates of cost-effectiveness, a 10-fold difference in the ICER in this hypothetical example, and should be addressed with sensitivity analysis in health economic evaluations.

PDB41

LONG-TERM EVALUATION OF THE ECONOMIC IMPACT OF REDUCING HBA1C BY 1% IN TYPE 2 DIABETES PATIENTS IN ALGERIA

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OBJECTIVES: To investigate the economic benefits of a 1% reduction in HbA1c in comparison with baseline levels in patients with type 2 diabetes in Algeria enrolled